

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
16 June 2005 (16.06.2005)

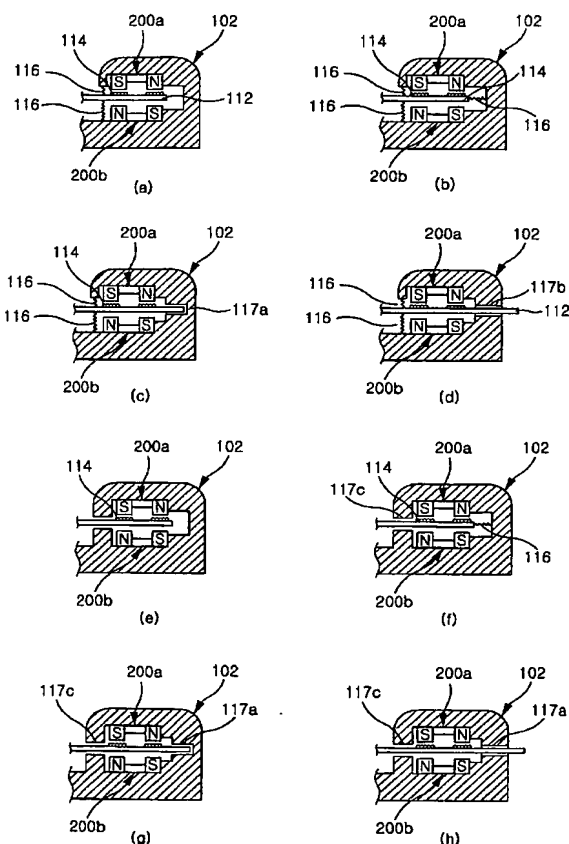
PCT

(10) International Publication Number  
**WO 2005/055649 A1**

- (51) International Patent Classification<sup>7</sup>: **H04R 7/04**
- (21) International Application Number:  
PCT/KR2004/003157
- (22) International Filing Date: 2 December 2004 (02.12.2004)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data:  
10-2003-0088160  
5 December 2003 (05.12.2003) KR
- (71) Applicants and  
(72) Inventors: **SHIN, Joung-Youl** [KR/KR]; Samsung Remian Apt. 103-1804, 414, Naeson-Dong, Uiwang 437-804 (KR). **HAN, Byung-Wan** [KR/KR]; 401, Wooram Billa, 1478-4 Seocho3-Dong, Seocho-Gu, Seoul 137-868 (KR).
- (74) Agent: **KWON, Hyuk-Sung**; 12F, Seo-Jeon Bldg., 1330-09, Seocho-dong, Seocho-gu, Seoul 137-858 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: PLATE TYPE SPEAKER USING HORIZONTAL VIBRATION VOICE COIL



(57) Abstract: The present invention relates to a plate type speaker adapted to radiate sound by transforming horizontal vibration for vibrating a side of a diaphragm into vertical vibration of the diaphragm. The plate type speaker of the present invention comprises a plate-shaped diaphragm for receiving horizontal vibration to generate vertical vibration; a base frame having a fixing portion to which one end of the diaphragm is coupled; a voice coil plate that has one end connected to the other end of the diaphragm, is mounted on the base frame to horizontally vibrate and has a voice coil wound on either or both of surfaces thereof, and a magnetic body that has opposite polarities at positions spaced apart by predetermined distances from top and bottom surfaces of the voice coil plate and is coupled to the base frame. According to the plate type speaker of the present invention, it is possible to manufacture a plate type speaker with a thickness reduced through transformation of vibration at a side of a diaphragm, which is caused by horizontal vibration of a voice coil plate, into vertical vibration of the diaphragm. Accordingly, the plate type speaker of the present invention can be easily applied to small appliances requiring an audio system, and it is also possible to manufacture plate type speakers in various forms with a plurality of diaphragms depending on the structure of a base frame.



SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*